# ANALYTIC SUBJECT INDEX


Aharony model 252
Anderson model 151, 179, 317, 355, 401, 415, 553, 594, 661, 667, 695

Band calculations 97, 167, 205, 470, 567, 710
Band structure 107, 110, 121
Bethe ansatz 169, 216, 231, 398

Cayley tree 692
Ce 337
Ce compounds 49, 507
Ce monopnictides 609
Charge density waves 158
Charge transfer 299
Cluster model 127, 179, 443
Cluster models 533
Coherence 358, 515
Coherence effects 635
Compound-atom theory 343
Coqblin–Schrieffer 110, 571
Correlated electron behavior 24, 75, 151, 567, 621, 683
Coulomb interactions 124, 291
Crystal fields 56, 107, 137, 237, 271, 347, 365, 371, 409, 427, 431, 479, 483, 507, 557, 609, 615, 625, 655
Cu magnetism 29, 69, 75, 453, 470, 675
Cu perovskites 29

3d, 4f and 5f systems 741
De Haas–van Alphen effect 100, 172, 273, 361, 600, 689
Dielectric response 264, 584

Effective mass 172, 273, 285, 361, 584
Electrodynamic response 285, 584
Electron–hole separation 306
Electronic structure 182, 197, 261, 275, 358, 379, 446, 496, 547, 550, 594, 678, 720, 733, 736
EXAFS 13
EXANES 13

Fermi liquid behavior 24, 167, 275, 361, 527, 621, Fout: 13S
Fermi surface 97, 100, 205, 273, 670
Ferromagnetic correlations 56, 117, 131, 137, 710
Ferromagnetism 113
Fluctuation conductivity 659
Flux flow resistivity 242
Form factor 635, 710

Grüneisen parameter 41, 49
Gutzwiller method 151

Heavy fermion behavior 9, 56, 75, 110, 113, 121, 224, 227, 309, 325, 355, 493, 632, 638, 741
Heavy fermion magnetism 19, 45, 321
Heavy fermion superconductivity 45, 53, 129, 141, 158, 209, 278, 335, 391, 419, 499, 564, 670, 720, 733
Heavy fermions 37, 49, 97, 134, 137, 144, 188, 194, 231, 343, 347, 361, 385, 389, 415, 507, 522, 550, 577, 584, 611, 667, 686, 689, 695
High temperature superconductivity 234, 252, 267, 275, 299, 438, 446, 458, 530, 641, 659, 661, 664
High temperature superconductors 75, 245, 255
Hubbard model 34, 124, 127, 169, 179, 299, 379, 443, 458, 527, 530, 641, 643, 683
Hybridization 37, 107, 175, 197, 379, 382, 483, 727, 736, 741
Hydromagnetism 291

Itinerant ferromagnetism 412, 435, 567

Jaccarino–Walker 699

Kerr effect 496
Kondo and RKKY interactions 144, 194, 365, 649, 727
Kondo effect 131, 231, 401, 692
Kondo lattice 93, 134, 188, 205, 216, 321, 375, 395, 427, 487, 504, 544, 571, 597, 600
Kondo necklace 213

$L_3$ edge spectroscopy 134, 163, 213, 355, 581, 618
Lower critical field ($H_{c1}$) 209, 278, 629, 720

Magnetic anisotropy 103, 175, 313, 347, 488, 609, 707
Magnetic breakdown 689
Magnetic correlations 9, 313, 463, 487, 544, 606, 611, 717
Magnetocaloric effect 155
Magnetoresistance 172, 242, 245, 273, 515, 600
Matthias' rules 234
Metal–insulator transition 59, 63, 191, 467, 736
Metallic hydrogen 291
Metamagnetism 41, 155, 331, 379, 385, 435, 511, 519, 600
Mixed valence/valence fluctuations 89, 163, 191, 340, 343, 405, 409, 561, 577, 581, 591, 603, 618, 695, 699, 741
Mixing 317
Moduli 389, 405, 667
Moment formation 103, 678
Monte Carlo 641
Mössbauer spectroscopy 163, 185, 347, 412, 441, 449, 487, 591
Mott insulator 29, 169
Mott transition 34, 337, 541
muon spin rotation 53, 453, 675
MX chains 458

Narrow band phenomena 337
Narrow bands 59, 224
Neutron diffraction 45, 69, 117, 239, 331, 463, 488, 587, 611
Neutron scattering, inelastic 1, 4, 37, 117, 137, 239, 271, 358, 371, 409, 427, 479, 606, 625, 655, 686, 699, 717
Ni perovskites 29
Nuclear magnetic resonance 75, 259, 522, 703

Optical reflectivity/conductivity 224, 328
Optical transitions 213, 224
Oxygen stoichiometry 249, 259, 467

Pairing interaction 124, 127, 151, 267, 299, 419, 446, 643, 661, 664, 733

Photoemission 24, 167, 261, 443, 533, 547, 581, 661, 683, 695, 736
Pressure/stress effects 63, 113, 158, 191, 197, 278, 358, 405, 412, 419, 487, 515, 707

Quadrupole interactions 131

RE magnetism 69, 239, 675
Resistivity 19, 89, 191, 249, 313, 340, 382, 405, 431, 493, 550, 603, 659, 707
Resonating valence bond model 527
RKKY interactions 317, 395

Screening anomalies 182
Skin depth 141
Sm impurities 401
Specific heat 19, 144, 188, 201, 216, 237, 309, 313, 325, 385, 419, 427, 504, 564, 571, 574, 597, 686, 713
Spin bags 267
Spin density waves 158, 499, 541
Spin dynamics 1, 4, 239, 483, 530, 577, 699, 717
Spin fluctuations 69, 89, 131, 163, 267, 355, 597, 678, 703, 713
Spin glass behavior 201, 252, 375, 507
Structure 213, 249, 255, 435, 467, 587
Substitution effects 129, 144, 219, 227, 245, 371, 379, 391, 395, 424, 449
Superconductivity 219, 351, 368, 424, 431, 713
Susceptibility/magnetization 17, 59, 89, 113, 185, 188, 209, 213, 216, 325, 335, 431, 488, 504, 511, 519, 571, 574, 591, 597, 615, 632, 635, 655, 659, 727

T ions in alkali metals 678
T ions in T metals 678
$t$–$J$ model 34, 306, 538, 541
Thermal conductivity 147, 647
Thermal expansion 19, 49, 389, 427, 557
Thermoelectric power 147, 375
Tm impurities 401, 561
Transport properties 59, 63, 93, 147, 321, 638

U compounds 49, 507
Ultrasound 41, 389
Upper critical field ($H_{c2}$) 278, 368, 473, 476, 499, 629, 652, 670, 713, 720

Volume collapse 337

Weak ferromagnetism 291
Wiedemann–Franz ratio 93
Wilson ratio 56, 325, 638

# MATERIALS INDEX


$AFe_2$(A = U, Np, Pu) 710

$Ba_{0.65}K_{0.35}BiO_3$ 652
$Bi(Ca_{0.5}Sr_{0.5})_3Cu_2O_x$ 647
$Bi_2Sr_2CaCu_2O_8$ 24

$CaCuO_2$ 470
Ce 337
(Ce, A)$Ru_2$ 424
(Ce, Gd)$Al_3$ 355, 632
(Ce, La)NiSn 358
(Ce, La)$Ni_2Sn_2$ 134
(Ce, La)$Pd_2Si_2$ 365
(Ce, La)$Ru_2Si_2$ 519, 606, 611
(Ce, RE)$Ru_2$ 424
(Ce, Th)$Cu_2Si_2$ 391
(Ce, U)$T_2X_2$ 382
Ce compounds 49, 507
Ce monopnictides 609
$CeAl_3$ 37, 285, 584
$Ce_3Al$ 587
Ce(Al, Gd)$_3$ 522
CeAlCu 581
CeAlNi 581
CeAs 609
$CeB_6$ 100, 147
$CeCu_2$ 205, 427, 600
$CeCu_6$ 224, 361, 504, 550
Ce(Cu, Ag)$_2$ 375
Ce(Cu, Au)$_6$ 144
Ce(Cu, Ga)$_5$ 686
Ce(Cu, Ni)$_2$ 355
Ce(Cu, Ni)$_2Ge_2$ 19
$CeCu_3Al_2$ 188
$CeCu_3Ga_2$ 188
$CeCu_2Ge_2$ 19
CeCuIn 89
$CeFe_2$ 197
$CeGe_{1.7}$ 137
$Ce_3In$ 56
$CeInCu_2$ 463, 557
$(Ce_{0.5}La_{0.5})Pd_2Si_2$ 597
$CeM_2Si_2$ 129
$CeM_2Sn_2$ 213
CeNi 172
$CeNi_2Si_2$ 581
Ce(Pb, In)$_3$ 649
Ce(Pb, Tl)$_3$ 649
$CePd_3$ 224, 285, 405
Ce(Pd, Ag)$_3$ 699
Ce(Pd, T)$_3$ (T = Ag, Rh) 618
$CePtGa_3$ 201
$CePt_2Si_2$ 93
CeRhIn 89
$CeRu_2Si_2$ 41, 97, 121
CeSb 107, 328, 496
$Ce_4Sb_3$ 131
Ce(Si, Ga)$_2$ 395
$CeSi_x$($x$ = 1.7, 1.8, 1.9) 137
$CeSn_{3+x}$ 635
$CeSn_2In$ 717
$CeS_x$($x$ = 1.7, 1.8, 1.9) 137
$CeT_3B_n$($n$ = 0, 1, 2) 618
$CeTb_n$($n$ = 0, 1, 2) 618
CeTe 107
$CmBa_2Cu_3O_7$ 655

$EuBa_2Cu_3O_6$ 264
$EuIr_2Si_2$ 340
$EuNiSi_2$ 340
$EuNi_3Si_5$ 340
$EuPt_2Si_2$ 591

$Fe_3Pt$ 409, 412

$GaMo_4(S, Se)_8$ 435
$GdBa_2(Cu, Fe)_3O_7$ 449
$GdBa_2Cu_3O_x$ 647

$(La, RE)_3Ba_3Cu_6O_{14+y}$ 467
$(La, Sr)_2CuO_4$ 59, 63, 69, 75, 736
$La_2CuO_4$ 1, 264, 470, 533
$LaInCu_2$ 557
LaNi 172, 205
LaSb 328
$(Li, Zn)_2V_2O_4$ 736
$Ln_2Ni_{12}As_7$ 185

Metallic hydrogen 291
$MRENb_6Cl_{18}$ 615
MX chains 458

$(Nd, Ce)_2CuO_4$ 13, 17, 63, 69
$(Nd, Th)_2CuO_4$ 13
$NdCu_2$ 479
$NdCu_6$ 574
$Nd_2CuO_4$ 271
$Nd_2CuO_{4-y}F_y$ 261
$Nd_2Fe_{14}B$ 479
$NdP_5$ 479
Ni 567
NiS 736
Np(Sb, Te) 488
$NpSn_3$ 487

$PrBa_2Cu_3O_6$ 675
$PrBa_2Cu_3O_7$ 239
PrSb 496
PuX (X = S, Se, Te) 493

(RE, Ce)$CuO_{4-d}$ 261
(RE, Z)$Ir_3$ (RE = Y, La, Ce, Th; Z = Gd, U) 219
$REBa_2Cu_3O_6$ 675
$REBa_2Cu_3O_{7-d}$ 69, 453
$REBa_2Cu_3O_7$ 655
$REBa_2Cu_4O_8$ 69
$RE_2Cu_2O_5$ 237
$REMo_6S_8$ 431
$REMo_6S_8$ (RE = Er, Lu) 431
$RENb_6Cl_{18}$ 615
RE(Rh, Ru)$_3B_2$ 317
$RERu_2$ (RE = Ce, La, Lu, Pr) 603
$RE_2T_3X_5$ 163

Sm impurities 401
$Sr_2VO_4$ 470

T ions in alkali metals 678
T ions in T metals 678
$Tl_2Ba_2Cu_3O_x$ 647
Tm 37
Tm impurities 401, 561

(U, Th)$Be_{13}$ 53, 209, 335
U compounds 49, 507
$UAl_2$ 703
UAs 707
$UBe_{13}$ 515
UC 273
UCoAl 331
$UCu_5$ 703
$UCu_{4+x}Al_{8-x}$ 194
$U_5Ge_3$ 368
$U_7Ge$ 368
U(M, T)$_5$ 727
U(Ni, Cu)$_5$ 389

U(Ni, T)Al (T = Y, Fe, Co) 379
UNiAl 313
$U_xP_y$ 703
UP 707
$UPd_3$ 547
U(Pd, Pt)$_3$ 37, 371, 511
$UPd_2Sn$ 550
$UPt_3$ 41, 129, 141, 155, 167, 224, 278, 285, 385, 564, 629, 720, 733
U(Pt, Pd)$_3$ 511
$UPt_3B_{0.11}$ 564
$U_2PtC_2$ 224
U(Ru, T)$_2Si_2$ 113
$URu_{1.2}Re_{0.8}Si_2$ 117
$URu_2Si_2$ 45, 121, 419, 499
$U_6T$ (T = Mn, Fe, Co, Ni) 158
$UT_2Ge_2$ (T = Mn, Fe, Co, Ni, Cu) 309
$UTGe_2$(T = Mn, Fe, Co, Ni, Cu) 309
$UT_2Si_2$ (T = Ru, Rh, Pd, Ir) 547
UTX 103
UTX (X = Si, Ge) 175
UX (X = P, As, Te) 483

$V_xO_y$ 736
$V_nO_{2n-1}$ 191

(Y, As)$Ba_2Cu_3O_{7-d}$ 245
(Y, Pr)$Ba_2Cu_3O_{7-d}$ 9
(Y, Pr)$Ba_2Cu_3O_7$ 675
$YBa_2$(Cu, Fe)$_3O_{7-d}$ 441
$YBa_2$(Cu, Ni)$_3O_{7-d}$ 249
$YBa_2$(Cu, Ni)$_3O_7$ 227
$YBa_2$(Cu, Sn)$_3O_{7-d}$ 441
$YBa_2$(Cu, Ni)$_3O_7$ 227
$YBa_2$(Cu, Sn)$_3O_{7-d}$ 441
$YBa_2$(Cu, Zn)$_3O_7$ 227
$YBa_2Cu_3O_{7-d}$ 4, 24, 59, 63, 75, 242, 255, 259, 446, 473, 476
$YbAgCu_4$ 571
YbAs 110, 625
$Yb_4$(As, Sb)$_3$ 638
$YbB_{12}$ 205
$YbCu_x$ ($x$ = 3.5, 4.5) 325
YbCuAl 347
$YbInCu_4$ 409
$YbInNi_4$ 409
YbN 625
YbP 625
$YbPd_2Si_2$ 347
YbSi 347